TRANSLATION

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Machine for the continuous production of filled and closed individual packages with parallelepipedic form

The invention relates to a machine for the continuous production of filled and closed individual packages with parallelepipedic form.

Machines are known for the production of filled and closed individual packages with parallelipipedic form, which have a hollow mold mandrel with rectangular cross section, about which a foil web drawn off from a supply coil is formed into a tube, and which comprise, besides the arrangements for the transverse closing of the tube and for the separating of the individual packages, a device for the lateral folding-in of the tube walls before the transverse closing.

The construction of these known machines is such that the filled and closed individual packages obtained have on the sides a rounded form, although before the transverse closing they were folded in laterally.

It is further a known practice, from a packing material web of relatively rigid formation (cardboard) to produce parallelepipedic individual cont. in the form of boxes, which, however, can be made only as such and later filled. In order to produce these

individual containers with parallelepipedic form, knifelike folding tools are used, which bring creases (Falze) into the material web. Further, it is also a known practice, on a tube with lateral longitudinal infoldings to make at intervals of the package length transverse creases which are to facilitate the folding-open of a separated-off tube section.

In an arrangement for the production of flat, bottle-type packages from a foil web it is furthermore already a known practice to prepare the later connecting places of the package by means of glue-applicator rollers on the flat web on its lengthwise folds.

The main purpose of the invention consists, in the face of this, in creating a machine for the continuous production of filled and closed individual packages with parallelepipedic form, in which as point of departure there is taken a foil material, and in which, before the filling of the individual filled packages to be produced in a continuous manner there is performed a treatment of the foil web in order to achieve filled individual packages of parallelepipedic form with sharp edges.

For this purpose, in a machine of the type mentioned at the outset for the preshaping known per se of a foil web to be reshaped into a package, between the supply coil and the hollow mold mandrel there are arranged two impressing rollers (Prägewalzen)

by which both the longitudinal and also the transverse closure lines are impressed into the foil web.

In this manner it is possible to produce individual packages filled in a continuous manner which, in contrast to the hitherto known packages with relatively round edges , have a pronounced parallelepipedic form and sharply stamped-out edges.

Further there is achieved by the invention the substantial advantage that the transverse folds which serve for the upper or the lower closure of the package, are formed simultaneously with the longitudinal fold lines. Finally, the invention has the special advantage that to known machines which produce individual packages filled and closed in a continuous manner from a foil web, the impressing rollers can be allocated in a simple manner without there occurring thereby any complication of the machine. Since the impressing rollers establishing the lengthwise and transverse closure lines are arranged in a place between the supply roll and the hollow mold mandrel, they do not disturb the further operations of the machine in the making of the tube, the filling of the packages and the closing and separating of the packages.

A form of execution of the invention is described by way of example in connection with the drawing.

Fig. 1 is a schematic representation of a machine in which the invention is embodied;

Fig. 2 is a part representation of a feed device;

Fig. 3 shows a part of the foil web after the folding, in which the solid lines give the folds on the front side of the foil and the broken lines the folds generated on the back of the foil, which determine the length, the cross section and the foldings-in of the ends of the packages.

As is to be seen from Fig. 1, a foil web 1 consisting of a plastic is drawn off at a constant rate over a deflecting roll 3 between two controlled rollers 4 and 5, which present projections and grooves which are purposefully arranged to provide the foil with folds in the manner represented in Fig. 3. The turning rate of these impressing rollers 4 and 5, which simultaneously ensure the feed of the foil 1 is synchronized in a suitable ratio with the rate of two endless chains 40 and 41. The position of the projections and of the grooves of the impressing rollers is established with respect to the transverse bars of the two endless chains 40 and 41 and can be corrected, for example, by means of a differential or of a register.

The foil then runs over a roll 6 and over a shaping tool 7 which has the same width as the package to be produced. This tool 7 has the purpose of initiating the wrapping of the foil about a mandrel 8, the cross section of which corresponds

to that of the package to be produced (section A-B).

The foil is then laid in correspondence to the longitudinal folds about the mandrel 8, in order to form a tube which is welded by means of a roll 9 in longitudinal direction (section C-D).

Behind that place at which the welding of the tube occurs, the mandrel 8 flattens out progressively, and its narrow sides go over into notches (Kerben). Two wedge-shaped blades 13 (of which only one is visible in Fig. 1) force the tube to follow the notches on both sides of the mandrel and to fold in (section (E.-F).

Two gluing devices (14) which are arranged on the narrow sides of the mandrel 8 and are synchronized with the general control of the machine periodically apply adhesive to the tube inside the foldings-in at the points 15 and 16.

A feed device in the form of two drive rolls 17 and 18 (Fig. 2) which are driven at a higher speed than the conveying and impressing rollers 4 and 5 move the tube onward. With the two drive rolls 17 and 18 there cooperate two countersupport rolls 19 and 20 arranged within the mandrel, the contact between the drive rolls and their countersupport rolls being ensured by two openings 21 and 22 formed in the shaping mandrel 8. The advance of the tube with increased speed has the purpose of keeping the tube 39 under constant tension.

The filling composition consisting of pasty, granular or pulverulent substances is fed in over the line 35, which conducts the filling composition through a tube 37 and delivers it at its end 38 into the tube formed.

Two driven endless chains 40 and 41, which carry heated heating bars 42 and 43, weld the filled tube at intervals in transverse direction so that there results a string of filled individual packages which are joined with one another by transversely welded closure ends, which packages are then severed along the lines indicated in Fig. 3 at M-N and O-P by cutters (not represented). The filled and closed individual packages of parallelepipedic form thus produced, with sharp edges, then pass onto a device (not represented) for conveying away.

The linear speed of the two endless chains 40 and 41 is less than the speed of the conveying and impressing rollers 4 and 5 and is established in such manner that the excess in speed of the rollers 4 and 5 makes it possible to supply between these rollers and the chains a sufficient foil web length for the folding-in and forming of the ends of each package in correspondence to the folds previously generated in the foil web by the rollers 4 and 5.

PATENT CLAIM

Machine for the continuous production of filled and closed individual packages with parallelepipedic form, which has a hollow shaping mandrel with rectangular cross section, about which a foil web drawn off from a supply coil is shaped into a tube, and which comprises, besides the arrangements for the transverse closing of the tube and for the separating-off off of the individual packages also a device for the lateral folding-in of the tube walls before the transverse closing, characterized in that for the preliminary impressing known per se of a foil web to be reshaped into a package, between the supply coil and the hollow shaping (molding) mandrel there are arranged two impressing rollers, by which into the foil web there are impressed both the longitudinal and also transverse closure fold lines.

Publications taken into consideration:

German patents 439,131, 642,449;

British patents 576,945, 716,783;

French patent 1,071,314;

Belgium patent 532,210;

Swizz patent 210,455;

U.S.A. patents 2,154,521, 2,237,119, 2,259,866, 2,294,215, 2,330,015.